بسم الله الرحمن الرحيم

عنوان المحاضرة: Fractures of the proximal femur

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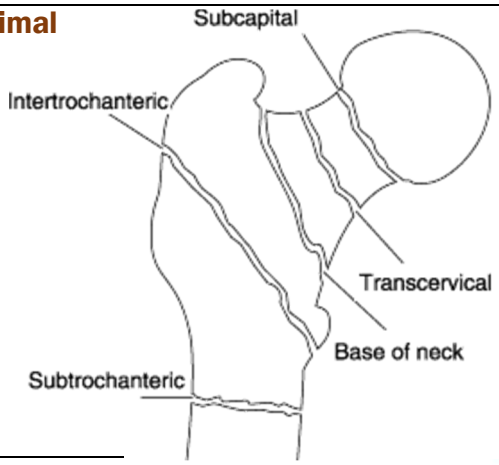
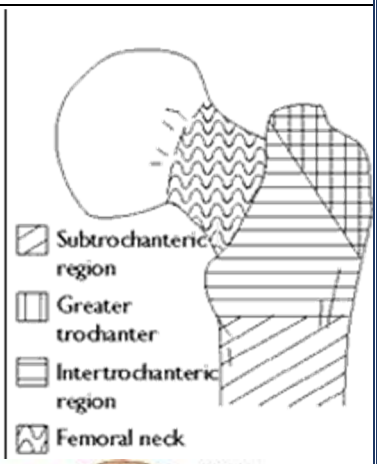
Anatomic Regions relating to areas of proximal femoral fracture:

1-Femoral neck 2-Greater Trochanter

3-Intertrochanteric region

4-Subtrochanteric region





Types of Hip fractures:

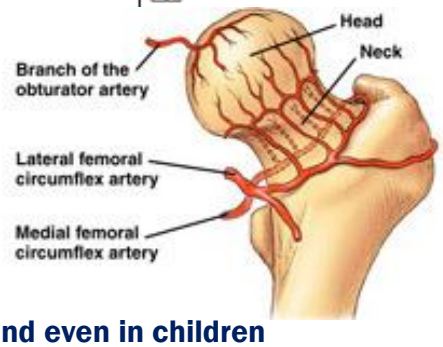
a) Intracapsular:

1-Subcapital 2-Transcervical 3-Basal

b) Extracapsular:

1-Subtrochanteric 2-Intertrochanteric

Fracture of the Femoral Neck: (V. Imp.)



Blood Supply: MCQ

-Profunda femoris artery arising from the femoral artery and gives of medial circumflex femotal artery →Small Retinacular branches

-Fracture of the neck → Tear of the retinacular arteries →

*Hemoarthrosis in hip joint *Compression on nearby vessels

*Kinking (twisting) of other vessels

Incidence: Common in elderly patients, occasionally in young adults and even in children

Occurs frequently in postmenopausal women (because of Osteoporosis)

Mechanism of Injury: Rotating violence of the hip due to tripping over something on the floor & falling

Or direct violence over lateral aspect of the hip by a fall on the side

Classification (Garden):

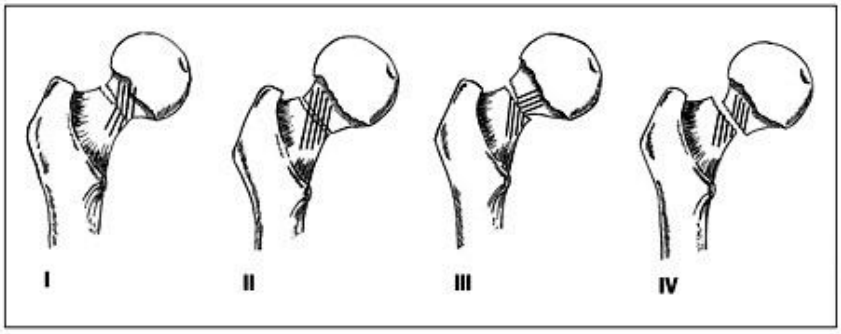
According to the appearance of hip on AP radiograph, it's used to determine the appropriate treatment.

Stage I: incomplete Fracture of neck (so called abducted or impacted)

Stage II: Complete fracture without displacement

Stage III: Complete fracture with partial displacement. Fragments are still connected by retinacular attachment, there is a misalignment of the femoral trabeculae

Stage IV: Complete fracture with full displacement, proximal fragment is free and lies in acetabulum



Clinical Features:

-Elderly patient with history of fall and inability to walk

Inspection:

-External Rotation -Shortening of the Hip

-The attachment of the capsule to the distal fragment prevents excessive external rotation of the leg (MCQ)

Palpation: لا تبالغ في تحريك المريض وإيلامه بدون مبرر لمجرد التأكد من الكسر

Tenderness over the anterior & lateral aspects of the hip joint, the greater trochanter is elevated

Investigations:

1-Plain X-Ray:

-Radiography has some limitations: -Spiral fractures are difficult to assess

-Commination isn't as easily demonstrated as CT -Some stress fractures are simply not visible by X-ray

2-CT: Plays an increasing role in evaluation of the fractures

3-MRI: is both sensitive and specific in detection of femoral neck fractures because it can show both the actual fracture line and the resulting bone marrow edema

Drawbacks of MRI: -Longer imaging time –Higher cost –Relative lack of widespread availability

-Exclusion of patients with pacemakers and other metallic prosthetics

4-Nuclear medicine (Bone Scan): For cases that can't be confirmed by plain X-Ray

Treatment:

A) Conservative: (may be used in children) Poor capacity got union due to:

1-Interference with blood supply to the proximal fragment

2-Difficulty in controlling the small proximal fragment

3-Lack of organization of the fracture hematoma due to presence of the synovial fluid

B) Surgical: **2 Essential Principles: -Perfect anatomical reduction -Rigid internal fixation

1-Reduction in young adults (from skeletal maturity 18 yrs to 55 yrs) →ORIF using (3 Cancellous Screws)

2-Reduction in older patients (> 60 yrs): → (HEMIARTHROPLASTY)

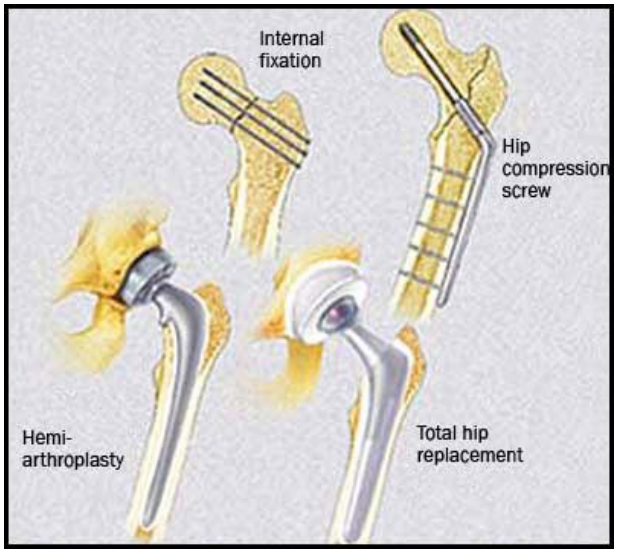
-Removing head of femur & replacing it by metal prosthesis

-Hemoarthoplasty is the procedure of choice for elderly patients with displaced femoral neck fracture

-Enable patient to ambulant and start early weight bearing → Avoid Complications of recumbency

-Independent ambulatory benefits from cemented hemiarthroplasty because of pain after surgery & Loosening

3-Reduction in Children: Manipulation under general anesthesia + Hip spica for 10 weeks



Complications: The Important: 1-Non Union

2-Avasular Necrosis: -(pain, limbing, Movement limitation)

-Appears in X-ray as patchy areas of increased density

-TTT→ Subtrochanteric Osteotomy

Intertrochanteric line Fractures:

Classification:

I → Non displaced with no comminution

II → Displaced with no comminution;

III → Displaced with greater trochanteric comminution

IV → Displaced with lesser trochanteric

V → Reverse obiliquity

Comparison between Intracapsular and Extracapsular Fracture: (EXAM QUESTION)

		Intracapsular Fracture	Extracapsular Fracture
Incidence		Less	More
Causing vilonece		Minimal rotation violence	Lateral violence
External Rotation		Minimal	Fully ext. Rotated
Local swelling		Nill	Marked local swelling
Treatment		Difficul	Easy
Complications			
	Non union	Common	Doesn't occur
	Malunion	Rare	Common

**Disadvantage of dynamic hip screw → Shortening & rotation at the fracture side

**TTT of the Subtrochanteric Fracture → Intramedullary nail with interlocking screws